



PROPOSED CHANGE ORDER REQUEST

Department of Watershed Management

Contract Name: Design/Build Roof Replacement & Painting of Steel Ground Storage Tanks at Scott Candler Water Treatment Plant **Date:** 6/1/2020
Contractor: Reeves Young LLC
Contract Number: 1073854 **Contract Amendment Number:** 2
Contract Amendment Category: Cost Schedule Scope Deliverables

Original Contract \$ Amount:	Contract Start Date:	Original Contract Time:(TERM)	Original Contract End Date:
\$7,241,636.00	3/8/2018	1029	12/31/2020

NTP Start Date:	Original Performance Days:(TIME)	Original Performance End Date:
3/20/2018	870	8/6/2020

Previous Change Order:	Previous Time Extensions (Days):	Previous Changes to \$ Amount:
Change Order No. 1:	117	\$500,000.00
Change Order No. 2:	0	\$0.00
Change Order No. 3:	0	\$0.00
Current Contract Amount:	Current Performance Time (Days):	Current Performance End Date:
\$7,741,636.00	987	12/1/2020

Description of Proposed Changes: This request is for additional funding to address the cost of Tank #1 roof replacement. The work associated under this contract includes the painting of all three tanks and the replacement of Tank #2 and Tank #3 Roof. Tank #1 roof replacement was not included in the original contract. The contractor was unable to complete a thorough internal inspection of Tank #1 until tank was emptied. Once Tank #1 was empty DWM and R&Y were able to evaluate Tank #1 roof condition. Please see attached reports. The Department of Watershed Management hereby requests a total of \$1,748,323.00 in additional funding as required to complete this project successfully.

Justification of Proposed Changes: The contract for this project did not include a Work Allowance. Tank #1 roof could not be inspected until tank was emptied.

Proposed Additional Performance Days:	Proposed Cumulative Performance Days:	Proposed Performance End Date:	Proposed Contract End Date:
182	1169	5/31/2021	6/30/2021
Proposed Changes to Dollar Amount:			Amount Spent To Date as of (6/1/2020):
\$1,748,323.00	\$9,489,959.00	\$6,047,908.71	

Monday, June 01, 2020

Sheena Spearman
 4572 Memorial Drive
 Decatur, GA 30032

**RE: Scott Candler WTP
 Steel Tank Repair
 Contract # 1073854
 Roof Replacement Tank #1**

Dear Sheena,

During performance of our contracted scope, we became concerned about the condition of the roof structure of Tank #1. Inspections were performed by RY partners as well as DeKalb County partners. RY’s inspection report was reviewed by the project PE and all parties agree that the structure is unsound, and replacement is recommended. This lump sum price includes engineering, design, roof demolition, and roof replacement for Tank #1. Scope of work for roof replacement is relative to contracted scope for tank #2.

Scott Candler Water Treatment Steel Ground Storage Tank# 1

Bid Item NO. 2	Description	Unit	Quantity	Total
2.1	Engineering & Design, Construction Documents,	LS	1	373,208
2.2	Roof Demolition	LS	1	351,262
2.3	Roof Replacement	LS	1	1,023,853
Total for Bid Item 2 Tank 1 Design/Build Price (State in Figures):				
\$ <u>1,748,323.00</u>				
Total for Bid Item 2 Tank 1 Design/Build Price (State in Words):				
<u>One Million Seven Hundred Forty-Eight Thousand Three Hundred Twenty-Three Dollars</u>				

We expect the overflow and tension ring will need to be replaced and pit repairs under the contracted “greater than 3/8” will be desired and or needed. Our understanding is these will be priced separately and funded from the remaining owner allowance as needed.

Monday, June 01, 2020

Lump Sum Price: \$1,748,323.00
Proposed Additional Performance Days: 182

If you have any questions or require any additional information, please do not hesitate to contact me at (770) 309-2423 or via email at rland@reevesyoung.com .

Sincerely,

Robby Land

Robby Land
Project Manager



APPLIED TECHNICAL SERVICES, INCORPORATED

1049 Triad Court, Marietta, Georgia 30062 • (770) 423-1400 Fax (770) 514-3299 • www.atslab.com • FAA#HC4R227M

ULTRASONIC INSPECTION REPORT

Job # T333018 PO # 18G3008 WO # N/A Date 3-30-2020 Page 1 of 4

Scott Candler Filter Plant
4830 Winters Chapel Rd.
Atlanta, GA 30360

MATERIAL SPEC: A285 Grade C
LOCATION: Knuckle Shell Course
WELD JOINT: N/A

INSPECTION PROCEDURE

SPECIFICATIONS: ATS 130.31 Rev. 0

ACCEPT/REJECT CRITERIA: None Specified – Thickness measurements for information only.

<input type="checkbox"/> SHEAR	<input type="checkbox"/> SURFACE	<input checked="" type="checkbox"/> CONTACT	TRANSDUCER FREQUENCY: <u>2.25 MHZ</u>
<input checked="" type="checkbox"/> LONGITUDINAL	<input type="checkbox"/> THICKNESS	<input type="checkbox"/> IMMERSION	TRANSDUCER SIZE: <u>3/8" Dia.</u>
<input type="checkbox"/> SKETCH ATTACHED			TRANSDUCER ANGLE: <u>0°</u>
SCANNING METHOD: <u>Manual A Scan</u>			REFERENCE STD.: (SN) <u>0.250" – 1" Step, S/N: 026</u>
SURFACE CONDITION: <u>Smooth bare metal</u>			MATERIAL SIZE: (THICK./DIA.) <u>Flat</u>
U.T. EQUIPMENT: <u>GE USM GO+ / S/N: GOPLS15040015</u>			COUPLANT/BATCH NO.: <u>Sonotech / 16F036</u>
TRANSDUCER: (MFG./SN) <u>GE FH2E / S/N: 13D0278J</u>			DAC METHOD: <u>N/A</u>
CAL. DUE DATE <u>8-7-2020</u>			

INSPECTION RESULTS

IDENTIFICATION	ACCEPT	REJECT	INDICATION LEVEL	REFERENCE LEVEL	REMARKS
Water Tank					
Knuckle Area	N/A	N/A	N/A	42.2 dB	Thickness measurements taken approximately 3' above the top of tank shell on knuckle area. See attached for thickness measurements and areas of visible damage/corrosion of tank.

SKETCH AND TECHNIQUE DESCRIPTION:
Scan speed during inspection is less than 6" per second. Transducer Cable: RG-174/U (6')

THICKNESS MEASUREMENTS

MIN. THICKNESS REQUIRED: <u>0.418"</u>	ACCEPT <u>N/A</u>
MIN. THICKNESS RECORDED: <u>0.466"</u>	REJECT <u>N/A</u>

INSPECTION PERFORMED BY: Tyler Leatherwood Level II U.T.

CLIENT APPROVAL: _____

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INSPECTION REPORT

Job # T333018 PO # 18G3008 WO # N/A Date 3-30-20 Page 2 of 4

Thickness measurements of knuckle area.
Locations start at manway, going counter clockwise from inside of tank.

KNUCKLE THICKNESS							
1	0.429"	17	0.452"	33	0.445"	49	0.439"
2	0.440"	18	0.436"	34	0.460"	50	0.436"
3	0.427"	19	0.442"	35	0.462"	51	0.446"
4	0.428"	20	0.434	36	0.447"	52	0.430"
5	0.455"	21	0.429"	37	0.446"	53	0.434"
6	0.431"	22	0.439"	38	0.463"	54	0.436"
7	0.462"	23	0.426"	39	0.446"	55	0.432"
8	0.444"	24	0.439"	40	0.437"	56	0.426"
9	0.423"	25	0.450"	41	0.440"	57	0.426"
10	0.436"	26	0.457"	42	0.433"	58	0.425"
11	0.430"	27	0.425"	43	0.431"	59	0.436"
12	0.432"	28	0.459"	44	0.452"	60	0.442"
13	0.430"	29	0.449"	45	0.439"	61	0.421"
14	0.418"	30	0.456"	46	0.466"	62	0.447"
15	0.461"	31	0.463"	47	0.443"	63	0.427
16	0.450"	32	0.437"	48	0.430"	64	0.431"

Thickness of overflow pipe taken around corrosion pitting of pipe.

Overflow Pipe			
0°	90°	180°	270°
0.401"	0.403"	0.261"	0.365"

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INSPECTION REPORT

Job # T333018 PO # 18G3008 WO # N/A Date 3-30-20 Page 3 of 4

Corrosion and surface condition of beams at roof.



Delamination of beam at roof



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INSPECTION REPORT

Job # T333018 PO # 18G3008 WO # N/A Date 3-30-20 Page 4 of 4

Surface pitting typical throughout tank.



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Wood Environment & Infrastructure Solutions, Inc.
 1075 Big Shanty Road NW
 Suite 100
 Kennesaw, GA, 30144
 USA

Field Report for Site Visit April 1, 2020

T: 770-421-3400

Project:	Water Tanks Repairs in Scott Candler Water Filtration Plant (SCWFP)	www.woodplc.com
Location:	Water Tank # 1, SCWFP, 4830 Winters Chapel Rd, Doraville, 30360	
Client:	DeKalb County Department of Watershed Management	
Contractor:	Reeves Young	
Date On-Site:	April 1, 2020	
Purpose of Visit:	Inspect condition of Tank # 1 roof framing members	
Report Date:	April 2, 2020	
Representatives On-Site:	J. Michael Garver P.E.	
Report Reviewed By:	Mirsada Ilic, P.E.	

Summary of Site Visit and Observations

Wood Environment and Infrastructure Solutions, Inc. (Wood), representative Mike Garver made a site visit to Scott Candler Water Filtration Plant in DeKalb County during the morning of Wednesday, April 1st, 2020 to inspect the existing conditions of Tank # 1. The tank is currently being refurbished with new coating which require a blast surface finish prior to installing the coatings. The Owner and remediation contractor, Reeves + Young, are concerned with the structural integrity of the roof framing and believes the blast finish would remove too much material and is recommending the roof structure be replaced. The purpose of Wood’s site visit was to evaluate those concerns from a close vantage point using a manlift. Wood’s inspection was limited to the roof beams in question. Our observations are supplemented by photographs in the attached Photolog.

Tank Construction: A description of the observed tank construction is as follows:

-) Tank # 1 is 132’ 10” diameter with a 5-million-gallon capacity estimated to be constructed in 1956. **(Refer to Photograph 1)**
-) The side walls are made of approximately 1 ¼” steel plates with a vertical dimension of 32 feet before transitioning through a radiused “knuckle” section which spans approximately 12 feet horizontally and 46 feet vertically from the base of the tank to the roof section. **(Refer to Photograph 2)**
-) The framing system of the roof section is made from 24 radially equally spaced long beams spanning on a slope approximately 51 feet (horizontally) from a ledge beam at the top of the “knuckle” section (approximate 46 feet above the base of the tank) to a built-up steel ring girder at the top and center of the tank roof. **(Refer to Photographs 2, 3, 19 and 20)**
-) Each of the 24 long beams are infilled with an additional 24 short beams spanning on a slope approximately 24 feet (horizontally) from a ledge beam at the top of the “knuckle” section to a 6” x 4” x ¼” bent plate with the long leg oriented vertically (LLV) transfer beam. This transfer beam transfers the upper short beam reaction back to the 2 adjacent long beams. **(Refer to Photographs 2, 3, 19 and 20)**
-) Long beams are built-up plate beams approximately 13 ¾” deep with a ¼” x 6 ½” top flange and ¼” x 7” bottom flange. **(Refer to Photographs 19 and 20)**
-) Short beams are built-up plate beams approximately 8 ¼” deep with a ¼” x 1” to 2” top flange and ¼” x 6” bottom flange. **(Refer to Photographs 19 and 20)**
-) The tank roof deck appears to be made of steel plate with an unknown thickness.



Observations: The following is a summary of our findings

1. A majority of the long and short roof beams show signs of advanced material loss due to rust. **(Refer to Photographs 4 through 8 and 18)**
2. It appears that the roof beams and underside of the tank steel roof deck have been recoated after previous rust damage. This is evident due to observed pitting in the steel surfaces under the existing coatings. **(Refer to Photographs 5, 6 and 13)**
3. The connections of the 6" x 4" LLV transfer beams were observed to have advanced material loss due to rust including bolts which are extremely compromised beyond a safe load carrying capacity. **(Refer to Photographs 9 through 13)**
4. The long beams bearing on the built-up steel ring girder at the top and center of the tank roof also show signs of advanced material loss due to rust and appear to be compromised from being able to transfer loads. **(Refer to Photographs 15 through 17)**

Conclusions/Recommendations/Concerns

Based on the above observations, it is Wood's opinion that Tank #1's roof structure has exceeded its service life. The amount of material loss is such that the required blast process could result in failures in the existing framing without extensive repairs which would probably exceed the cost of a roof replacement. Roof repairs would be extensive and are beyond the scope of this report.

It is Wood's recommend the roof structure be replaced.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

Photograph No. 1:



Comment:

Exterior view of Tank #1. Arrow indicates sidewall opening and circle indicates removed sidewall section which is approximately 1 1/4" thick and appears to be in good condition.

Photograph No. 2:



Comment:

View from inside Tank #1 from the base of tank. Rusting is evident from the discoloration on the framing members with a white coating. The roof framing system is made from 24 long spanning steel beams with an additional 24 short spanning beams between each long spanning beam. Arrow indicates roof beam support on top of "knuckle" section.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

Photograph No. 3:



Comment:

View of upper roof. Circle indicates transition of short beams to long beams. For more on the transfer beam, see photos 9 through 14. Arrow indicates center steel ring girder. See photos 15 through 17.

Photograph No. 4:



Comment:

Typical view of rusting of tank roof beam bottom flange.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

Photograph No. 5:



Comment:

Representative example of major loss of section on tank roof beam bottom flange. Circle indicates examples of steel pitting prior to previous coating installation.

Photograph No. 6:



Comment:

Representative example of major loss of section on tank roof beam bottom flange. Circle indicates examples of steel pitting prior to previous coating installation.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

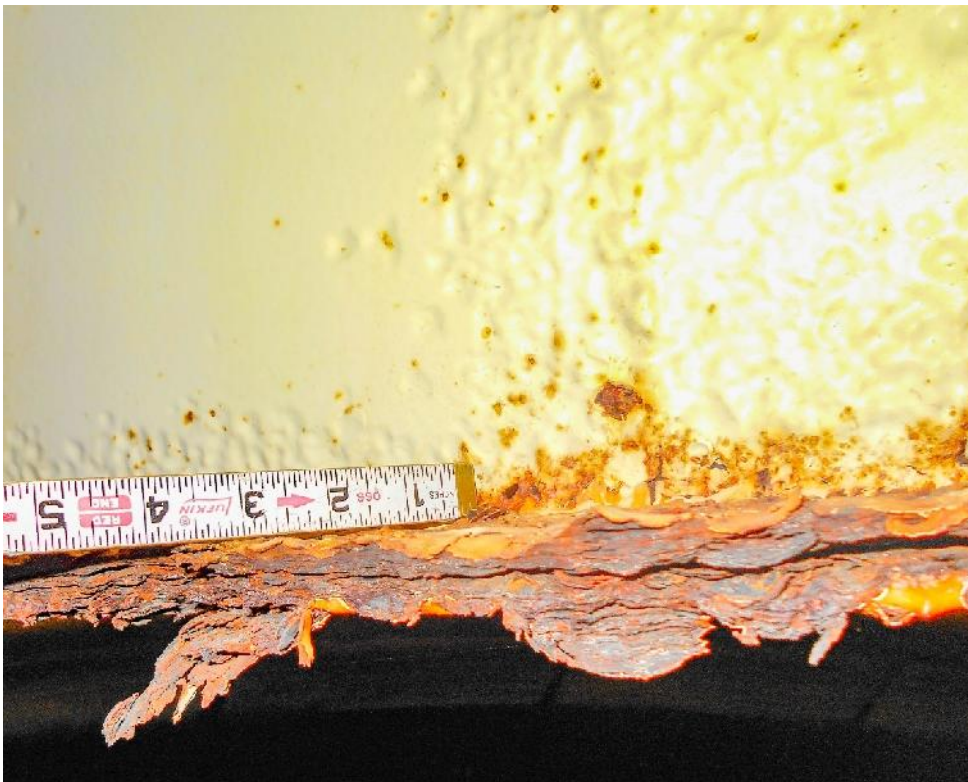
Photograph No. 7:



Comment:

Representative example of major loss of section on tank roof short beam bottom flange.

Photograph No. 8:



Comment:

Close up view of advanced loss of section on tank roof beam bottom flange due to rust.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

Photograph No. 9:



Comment:

Outside view of 4" x 6" x 1/4" (LLV) transfer beam. For closer view of connection in left circle, see photo 11. For closer view of connection in right circle, see photo 13 & 14. For closer view of short beam to 4"x6" transfer beam, see photo 12.

Photograph No. 10:



Comment:

Inside view of 4" x 6" x 1/4" (LLV) transfer beam.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

Photograph No. 11:



Comment:

Advanced rust corrosion of transfer roof beam to long beam. Arrow indicates 6" vertical leg of 6" x 4" transfer beam.

Photograph No. 12:

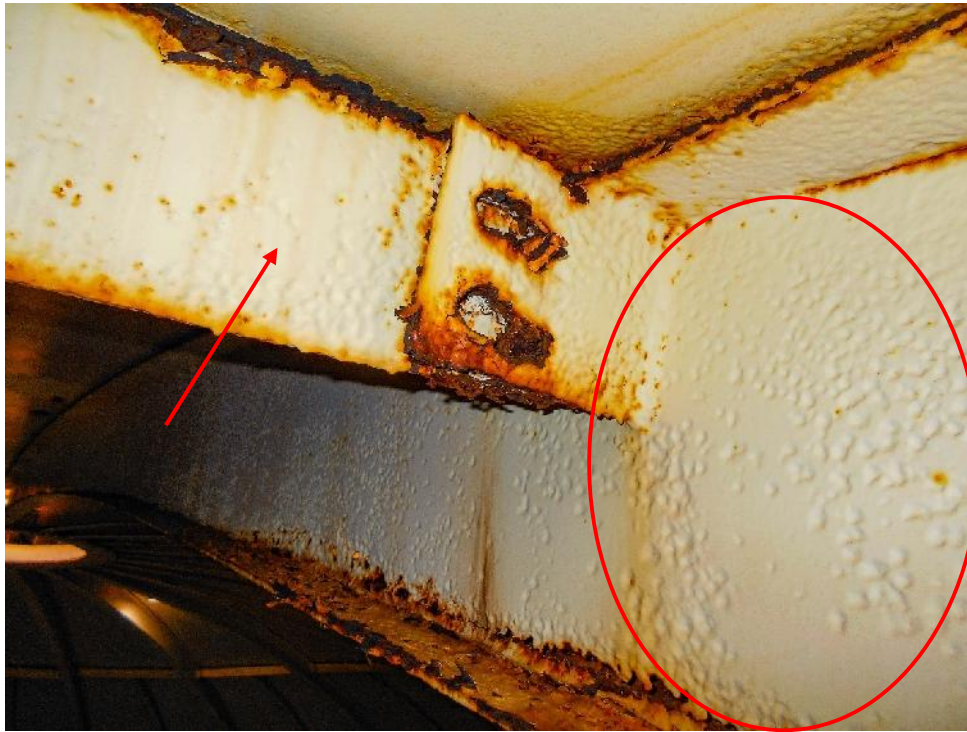


Comment:

Advanced rust corrosion of short beam to transfer beam. Ruler is on the side of short beam.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

Photograph No. 13:



Comment:

Outside view of advanced rust corrosion of transfer roof beam to long beam. Arrow indicates 6" vertical leg of 6" x 4" transfer beam. Portion of bolts are missing. Circle indicates examples of steel pitting prior to previous coating installation.

Photograph No. 14:



Comment:

Inside view of advanced rust corrosion of transfer roof beam to long beam. Arrow indicates remaining heads (or nuts) of missing bolts.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

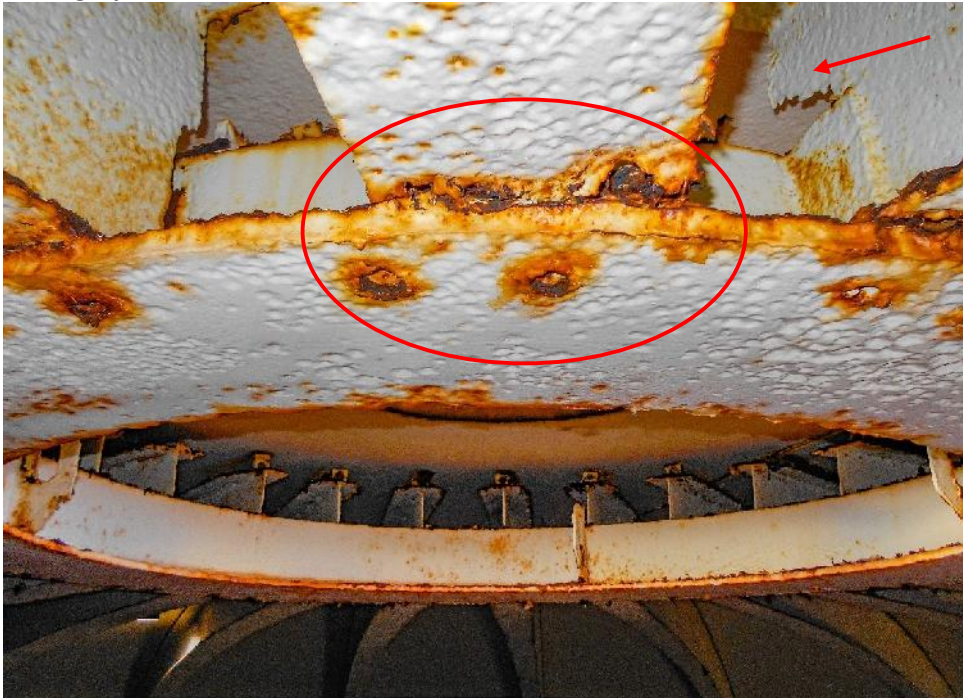
Photograph No. 15:



Comment:

View looking up at center ring girder.

Photograph No. 16:



Comment:

Close up of roof long beams bearing on ring girder. Circle indicates area of holes in bottom flange due to rust. Arrow indicates example of lost web section in long beam at the bearing due to rust.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

Photograph No. 17:



Comment:

Inside view of roof long beams bearing on ring girder with advance rusting.

Photograph No. 18:

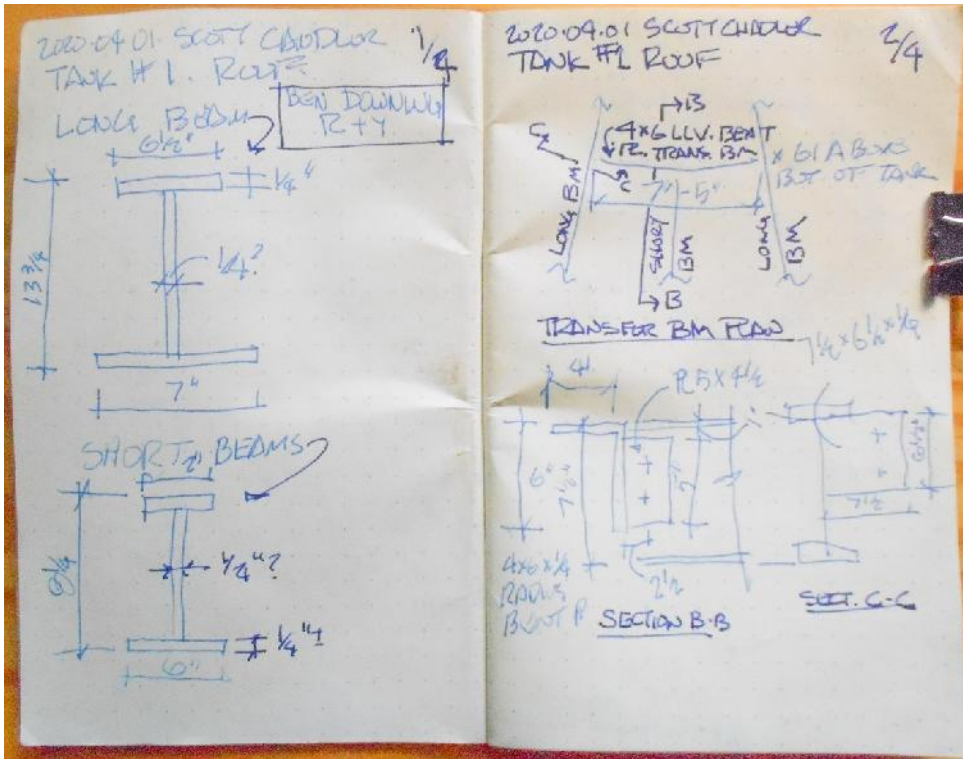


Comment:

Sections of beam flange removed by hand. Section above ruler is advanced rusting flange steel with coatings on back side. Larger sections below the ruler are the outside surface of beam flange with coat still adhered.

By: M. Garver Date: 02 April 2020 Reviewed: M. Ilic Date: 02 April 2020

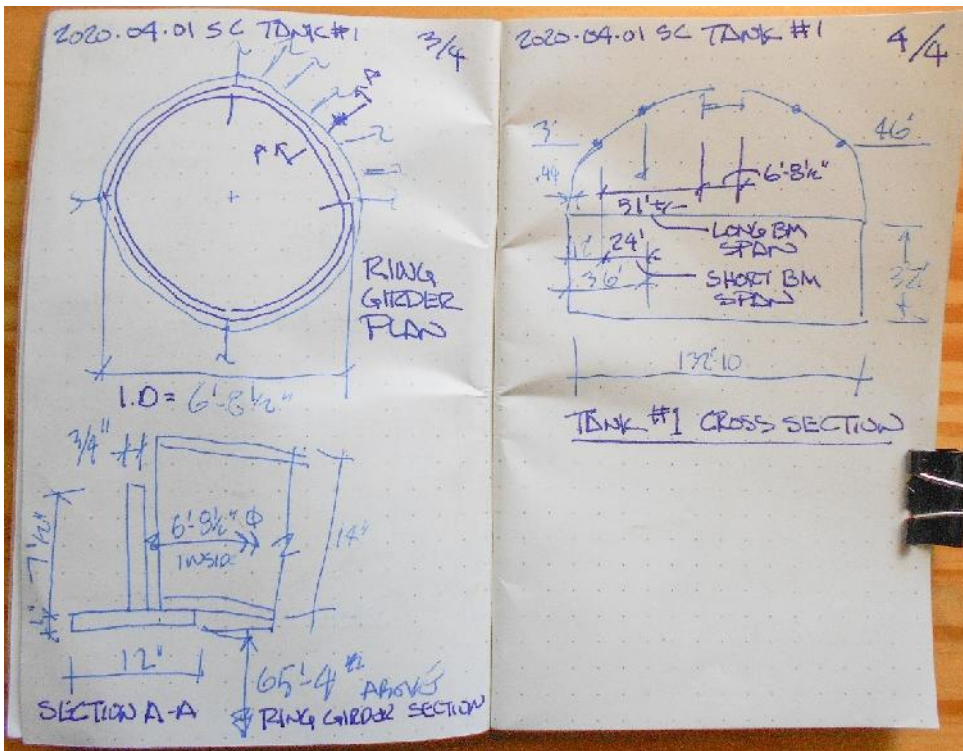
Photograph No. 19:



Comment:

Pages 1 and 2 of field notes.

Photograph No. 20:



Comment:

Pages 3 and 4 of field notes.